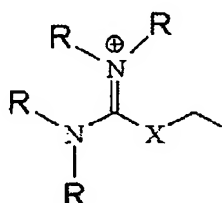


Listing of Claims:

1-15 (Cancelled)

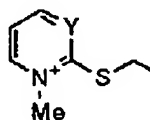
16. (Cancelled) A compound consisting of a targeting moiety directly bound to a leaving group selected from the group consisting of:

(i) groups of formula:



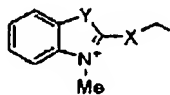
where X is S, O and R can be the same or different at each occurrence and is selected from C₁ to C₂₀ alkyl groups;

(ii) groups of formula:



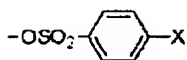
where Y is N or CH;

(iii) groups of formula:



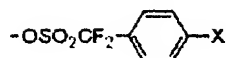
where when X is S, then Y is O or S and where when X is O, then Y is S;

(iv) groups of formula:



where X is selected from C₄ to C₁₀ alkylene, -CN, -N⁺(CH₃)₃, or -(Q)_nOCH₃ where Q is C₂ to C₆ alkoxy and n = 1 to 6;

(v) groups of formula:



where X is selected from C₄ to C₁₀ alkylene, -CN, -N⁺(CH₃)₃, or -(Q)_nOCH₃ where Q is C₂ to C₆ alkoxy and n = 1 to 6; and

(vi) groups of formula:



where X is selected from C₄ to C₁₀ alkylene, -CN, -N⁺(CH₃)₃, or -(Q)_nOCH₃ where Q is C₂ to C₆ alkoxy and n = 1 to 6; and

wherein the targeting moiety is selected from the group consisting of proteins, glycoproteins, lectins, peptides, polypeptides, saccharides, vitamins, steroids, steroid analogs, hormones, cofactors, nucleosides, nucleotides, and polynucleotides.

17. (Cancelled) A compound as in claim 16 wherein the leaving group is bound to a solid support.

18. (Currently amended) A method of producing an imaging agent, said method comprising the steps of:

providing a compound consisting of a targeting moiety directly bound to a leaving group having chemical characteristics capable of facilitating separation of the imaging agent from by-products derived from the leaving group;

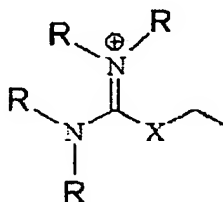
contacting the compound with a solution containing a detectable species to form the imaging agent, ~~wherein solubility of the imaging agent differentiates it from the compound~~;

separating the imaging agent from ~~the compound by differential solubility~~ by-products derived from the leaving group; and

recovering the imaging agent;

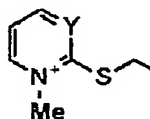
wherein the leaving group is selected from the group consisting of:

(i) groups of formula:



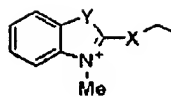
wherein X is S, O and R can be the same or different at each occurrence and is selected from C₁ to C₂₀ alkyl groups;

(ii) groups of formula:



wherein Y is N or CH;

(iii) groups of formula:



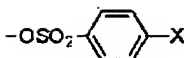
wherein

X is S and Y is O; or

X is S and Y is S; or

X is O and Y is S.

(iv) groups of formula:

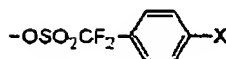


wherein X is selected from C₄ to C₁₀ alkylene, -CN, -N⁺(CH₃)₃, and -(Q)_nOCH₃;

Q is C₂ to C₆ alkoxy; and

n = 1 to 6;

(v) groups of formula:



wherein

X is selected from C₄ to C₁₀ alkylene, -CN, -N⁺(CH₃)₃, and -(Q)_nOCH₃;

Q is C₂ to C₆ alkoxy; and

n = 1 to 6;

(vi) groups of formula:



wherein

X is selected from C₄ to C₁₀alkyl, -CN, -N⁺(CH₃)₃, and -(Q)_nOCH₃;

Q is C₂ to C₆ alkoxy; and

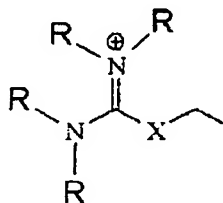
n = 1 to 6; and

wherein the targeting moiety is selected from the group consisting of peptides, saccharides, vitamins, steroids, steroid analogs, hormones, cofactors, nucleosides, nucleotides, and polynucleotides.

19. (Cancelled) A method as in claim 18 wherein the step of providing a compound comprises providing a compound wherein the leaving group is bound to a solid support.

20. (Original) A method as in claim 18 wherein the step of contacting the compound with a solution containing the detectable species comprises contacting the compound with a solution containing ¹⁸F.

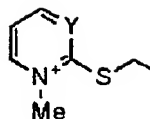
21. (withdrawn) A compound according to claim 16, wherein the leaving group is a group of formula



where X is S or O; and

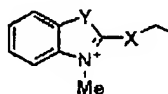
R can be the same or different at each occurrence and is selected from C₁ to C₂₀ alkyl groups.

22. (withdrawn) A compound according to claim 16, wherein the leaving group is a group of formula



where Y is N or CH.

23. (withdrawn) A compound according to claim 16, wherein the leaving group is a group of formula



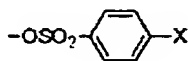
wherein

X is S and Y is O; or

X is S and Y is S; or

X is O and Y is S.

24. (previously presented) A method according to claim 18, wherein the leaving group is a group of formula



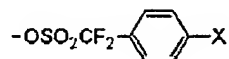
wherein

X is selected from C₄ to C₁₀ alkyl, -CN, -N⁺(CH₃)₃, and -(Q)_nOCH₃;

Q is C₂ to C₆ alkoxy; and

n is 1 to 6.

25. (withdrawn) A compound according to claim 16, wherein the leaving group is a group of formula



wherein

X is selected from C₄ to C₁₀ alkylene, -CN, -N⁺(CH₃)₃, and -(Q)_nOCH₃;

Q is C₂ to C₆ alkoxy; and

n is 1 to 6.

26. (withdrawn) A compound according to claim 16, wherein the leaving group is a group of formula



wherein X is selected from C₄ to C₁₀ alkylene, -CN, -N⁺(CH₃)₃, or -(Q)_nOCH₃;

Q is C₂ to C₆ alkoxy; and

n is 1 to 6.